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A Structural Equation Model of Health Anxiety: The Roles of Fatigue, Spiritual Vitality, Social Support, and Lifestyle in Chronic Fatigue Syndrome

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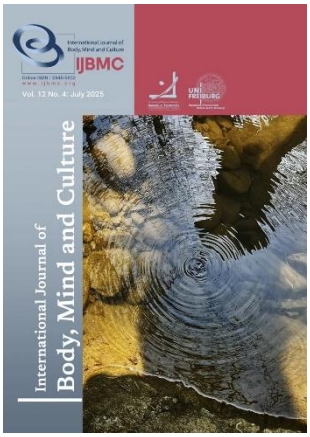

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ABSTRACT

Objective: This study aimed to model health anxiety based on chronic fatigue symptoms and spiritual vitality, considering the mediating roles of social support and lifestyle in patients with chronic fatigue syndrome (CFS).

Methods and Materials: A descriptive correlational study was conducted on a sample of 400 patients diagnosed with CFS in Tehran, selected using the Krejcie and Morgan sampling framework. Participants completed validated self-report instruments measuring health anxiety, chronic fatigue, spiritual vitality, social support, and lifestyle. Data were analyzed using SPSS-27 to compute Pearson correlations and AMOS-21 for Structural Equation Modeling (SEM). Assumptions of normality, linearity, multicollinearity, and outliers were confirmed before modeling.

Findings: Chronic fatigue symptoms had a significant direct positive effect on health anxiety ($\beta = 0.41$, $p < .001$), while spiritual vitality showed a significant direct negative effect ($\beta = -0.37$, $p < .001$). Both social support ($\beta = -0.26$, $p < .001$) and lifestyle ($\beta = -0.32$, $p < .001$) significantly mediated these relationships. The model demonstrated excellent fit indices ($\chi^2/df = 2.60$, GFI = 0.93, CFI = 0.95, RMSEA = 0.063). Total effects indicated that spiritual vitality was the strongest overall predictor of reduced health anxiety ($\beta = -0.59$), while chronic fatigue exerted an indirect and attenuated total effect ($\beta = 0.16$) through mediators.

Conclusion: The findings support a multidimensional model in which spiritual vitality and health-promoting lifestyle behaviors significantly buffer the psychological impact of chronic fatigue symptoms on health anxiety. Clinical interventions for CFS patients should incorporate strategies to enhance spirituality, strengthen social support, and promote lifestyle improvement to mitigate health-related anxiety.

Keywords: Chronic fatigue syndrome, Health anxiety, Spiritual vitality, Social support, Lifestyle.

Introduction

Chronic Fatigue Syndrome (CFS), also referred to as Myalgic Encephalomyelitis (ME/CFS), is a complex, debilitating disorder marked by persistent fatigue not alleviated by rest, accompanied by cognitive impairments, unrefreshing sleep, pain, and orthostatic intolerance. Increasingly, scholars have acknowledged that patients with CFS not only suffer physically, but also experience considerable psychological disturbances such as health anxiety—an excessive preoccupation with bodily symptoms and fears of illness despite medical reassurance (Kamudoni et al., 2024; Loades et al., 2017). Health anxiety can significantly disrupt coping mechanisms, impair quality of life, and complicate the clinical course of fatigue-related syndromes (Fahim et al., 2022; Gu et al., 2022). Understanding the multifaceted predictors of health anxiety in these patients, especially concerning spiritual vitality, social support, and lifestyle behaviors, can inform comprehensive intervention models.

Fatigue, as the hallmark symptom of CFS, is now conceptualized as a multidimensional experience encompassing physical, mental, and emotional exhaustion (Haggag, 2024; Kuo et al., 2025). While fatigue has long been viewed as a physical limitation, emerging evidence suggests its psychological dimensions may be equally damaging, especially when it manifests chronically and severely, leading to mood instability and health-related anxieties (Dailey et al., 2015; Walter et al., 2018). Dailey et al. (Dailey et al., 2015) demonstrated that both cognitive and physical fatigue intensify pain perception and subjective exhaustion in fibromyalgia patients, supporting the generalizability of fatigue's psychological implications across chronic illnesses. Likewise, Weaver (Weaver, 2025) emphasized how fatigue metrics in obesity-related trials reflect significant reductions in physical and emotional functioning, highlighting the intersection between somatic symptoms and mental health.

These findings underscore that fatigue alone cannot predict mental distress. Instead, spiritual vitality—referring to a person's sense of meaning, existential purpose, and inner connectedness—has emerged as a critical protective factor. Individuals with higher spiritual vitality often exhibit superior coping skills, reduced anxiety, and healthier perspectives on suffering and illness (Lau et al., 2022; Shen et al., 2024). The integration of spirituality in health frameworks is particularly important in cultures with religious and philosophical traditions that promote resilience through existential belief systems. Marck et al. (Marck et al., 2017) confirmed that spiritual beliefs and lifestyle adjustments significantly mitigate pain and psychological strain in patients with multiple sclerosis, a condition sharing many symptomatic overlaps with CFS.

Moreover, social support plays a decisive mediating role between symptom severity and psychological resilience. Perceived social support—whether from family, peers, or professional sources—has been consistently linked with lower levels of anxiety, depression, and illness preoccupation (Gu et al., 2022; Nakao et al., 2021). Khanji et al. (Khanji et al., 2023) revealed that healthcare professionals with strong lifestyle foundations and social networks experienced reduced psychological distress during the COVID-19 pandemic, reinforcing the buffering effects of relational resources. Social support not only buffers stress directly but also promotes positive behavioral patterns and adaptive lifestyle decisions that indirectly affect mental health outcomes.

Lifestyle is another indispensable component of the health anxiety equation. A health-oriented lifestyle that incorporates physical activity, nutrition, sleep hygiene, and stress management contributes to enhanced immune function and better psychological well-being (Keramati, 2021; Mahdian et al., 2021). In a cross-sectional study by Fahim et al. (Fahim et al., 2022), individuals engaging in healthy routines reported lower mental stress during the pandemic, supporting the hypothesis that lifestyle behaviors can mediate the effects of environmental or physiological challenges on mental health. Similarly, Hajiebrahim Araghi et al. (Hajiebrahim Araghi et al., 2024) highlighted that women with obesity who maintained a health-conscious lifestyle experienced less body-related anxiety, with body esteem acting as a significant mediator.

In the context of CFS, fatigue symptoms have a cascading effect on health anxiety, often exacerbated by sedentary routines and poor health behaviors (Palotai et al., 2020; Völker et al., 2015). Walter et al. (Walter et al., 2018) described fatigue as not only persistent but also resistant to pharmacological treatment, necessitating more integrated biopsychosocial models. Furthermore,

chronic fatigue may alter an individual's perceptual system, heightening vigilance to bodily cues and leading to misinterpretations of benign sensations as indicators of illness, which in turn increases health anxiety (Western et al., 2021).

Another crucial consideration is the internalization of fatigue-related distress. Völker et al. (Völker et al., 2015) found discrepancies between objective and subjective fatigue measures, suggesting that personal beliefs and mental schema—rather than physiological exhaustion alone—may drive much of the psychological burden in CFS. This supports the rationale for examining cognitive-affective constructs like spiritual vitality and perceived support in conjunction with biological symptoms.

Culturally and contextually, studies in Asian and Middle Eastern populations have affirmed the interaction between fatigue, spirituality, lifestyle, and mental health. Liang et al. (Liang et al., 2024) and Zhang et al. (Zhang et al., 2020) demonstrated how cultural framing of fatigue, as seen in traditional medicine or collectivist values, shapes individual experiences and responses. For example, Xiaoqun and Ye (Xiaoqun & Ye, 2022) explored fatigue in student populations, highlighting how high academic pressure without adequate emotional and spiritual support led to decreased teaching quality and increased psychological symptoms. Likewise, Lu et al. (Lu et al., 2021) identified thermomechanical fatigue not just as a mechanical stressor, but also as a metaphor for human psychophysical strain in demanding work environments.

Recent clinical research has increasingly called for the integration of multivariate models to understand health anxiety and fatigue-related disorders. Khabibullin and Kochetkova (Khabibullin & Кочеткова, 2023) emphasized the need for fatigue prevention strategies grounded in psychosocial diagnostics, while Lestari et al. (Lestari et al., 2023) proposed that fatigue assessment tools must capture both mental and physical domains. Likewise, Yadav and Thapa (Yadav & Thapa, 2019) suggested modeling fatigue through strain-based frameworks to account for the cumulative impact on well-being. These theoretical insights support the necessity of including fatigue symptoms, spiritual vitality, lifestyle behaviors, and social support into a unified structural model when assessing health anxiety in CFS patients.

This study seeks to address these critical gaps by modeling health anxiety based on chronic fatigue symptoms and spiritual vitality, with social support and lifestyle as mediating variables, among patients diagnosed with CFS in Tehran.

Methods and Materials

Study Design and Participants

This study employed a descriptive correlational design to investigate the predictive role of chronic fatigue symptoms and spiritual vitality on health anxiety, with the mediating roles of social support and lifestyle in individuals diagnosed with chronic fatigue syndrome. The statistical population included patients with chronic fatigue syndrome residing in Tehran in 2025. Based on Krejcie and Morgan's (1970) sample size determination table, a sample of 400 participants was selected using convenience sampling from outpatient clinics affiliated with medical centers specializing in chronic fatigue and psychosomatic disorders. Inclusion criteria included age between 18 and 60 years, a clinical diagnosis of chronic fatigue syndrome confirmed by a physician, and consent to participate in the study. Participants with severe psychiatric conditions or neurological disorders were excluded.

Instruments

To measure health anxiety, the Short Health Anxiety Inventory (SHAI) developed by Salkovskis et al. (2002) is used. This self-report instrument consists of 18 items and assesses individuals' health-related anxieties regardless of actual medical conditions. The inventory includes two subscales: Likelihood of Illness and Negative Consequences of Illness. Each item is rated on a 4-point Likert scale ranging from 0 to 3, resulting in a total score ranging from 0 to 54, with higher scores indicating more severe health anxiety. The SHAI has been widely validated across various populations. In Iran, its validity and reliability have been confirmed in clinical and non-clinical samples, demonstrating strong internal consistency (Cronbach's alpha > 0.80) and good construct validity.

The Chalder Fatigue Questionnaire (CFQ), developed by Chalder et al. (1993), is used to assess chronic fatigue symptoms. This 14-item instrument evaluates both

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physical fatigue and mental fatigue through two subscales. Respondents rate each item on a 4-point Likert scale (ranging from 0 = "less than usual" to 3 = "much more than usual"). The total score ranges from 0 to 42, with higher scores indicating greater fatigue severity. The CFQ has been translated and psychometrically validated in Persian for use in Iranian populations, showing satisfactory reliability (Cronbach's alpha > 0.85) and convergent validity with related health constructs.

Spiritual vitality is assessed using the Spiritual Well-Being Scale (SWBS) developed by Paloutzian and Ellison (1982). This 20-item scale comprises two subscales: Religious Well-Being (RWB) and Existential Well-Being (EWB), each with 10 items. Responses are scored on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree), yielding a total score between 20 and 120. Higher scores indicate greater levels of spiritual well-being and vitality. The SWBS has been widely used and adapted in various cultures. In Iran, multiple studies have confirmed its validity and reliability (Cronbach's alpha > 0.80), and it is frequently used in psychological and health research.

The Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al. (1988), is employed to measure perceived social support. The MSPSS contains 12 items grouped into three subscales: Family Support, Friends Support, and Significant Other Support. Items are rated on a 7-point Likert scale from 1 (very strongly disagree) to 7 (very strongly agree), resulting in total scores ranging from 12 to 84. Higher scores reflect greater perceived social support. The MSPSS has demonstrated excellent psychometric properties in diverse populations. The Persian version has been validated in Iran, exhibiting high internal consistency (Cronbach's alpha > 0.85) and sound factorial structure.

Lifestyle is measured using the Health-Promoting Lifestyle Profile II (HPLP-II) developed by Walker, Sechrist, and Pender (1995). This comprehensive 52-item instrument assesses six dimensions of health-promoting behavior: Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, and Stress Management. Items are rated on a 4-point Likert scale ranging from 1 (never) to 4 (routinely), with total scores ranging from 52 to 208. Higher scores indicate a more health-promoting lifestyle. The HPLP-II has been translated and validated for use in Iranian populations, with confirmed reliability (Cronbach's alpha > 0.90) and construct validity across various health-related studies.

Data Analysis

Data analysis was conducted using SPSS version 27 and AMOS version 21. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were calculated to summarize participant demographics and study variables. The relationships between health anxiety and other variables (chronic fatigue symptoms, spiritual vitality, social support, and lifestyle) were examined using Pearson correlation coefficients. In addition, a Structural Equation Modeling (SEM) approach was used to test the hypothesized causal model and mediating effects. Model fit indices such as CFI, TLI, RMSEA, and χ^2/df were used to evaluate model adequacy.

Findings and Results

Among the 400 participants in the study, 256 (64.1%) were female and 143 (35.8%) were male, while 1 participant (0.1%) identified as non-binary. In terms of educational attainment, 74 individuals (18.4%) held a high school diploma, 165 (41.3%) had a bachelor's degree, 110 (27.5%) had a master's degree, and 51 (12.8%) possessed a doctoral or professional degree. Regarding marital status, 193 participants (48.3%) were married, 178 (44.5%) were single, 17 (4.3%) were divorced, and 12 (3.0%) were widowed. The mean age of participants was 36.72 years (SD = 9.14), ranging from 19 to 59 years.

Table 1

Means and Standard Deviations for Research Variables (N = 400)

Variable	Mean (M)	Standard Deviation (SD)
Health Anxiety	27.34	6.85
Chronic Fatigue	30.57	8.12

Spiritual Vitality	89.46	10.77
Social Support	64.21	9.56
Lifestyle	141.33	18.64

Participants reported moderate health anxiety (M = 27.34, SD = 6.85), elevated chronic fatigue symptoms (M = 30.57, SD = 8.12), and high levels of spiritual vitality (M = 89.46, SD = 10.77). The mean score for perceived social support was 64.21 (SD = 9.56), and lifestyle habits were also relatively health-promoting (M = 141.33, SD = 18.64). These values indicate generally high protective psychological resources in the sample alongside elevated physical fatigue (Table 1).

Before performing Pearson correlation and Structural Equation Modeling analyses, all necessary assumptions were examined and confirmed. The data met the assumption of normality as skewness and kurtosis values for all key variables ranged between -1.21 and +1.06, within the acceptable threshold of ±2. Multicollinearity was not a concern, with Variance Inflation Factors (VIF) for all predictors falling below 2.5 and Tolerance values exceeding 0.40. The assumption of linearity was confirmed through scatterplots, and homoscedasticity was validated based on standardized residual plots. Additionally, Mahalanobis distance values revealed no extreme multivariate outliers (all p-values > .001), and the sample size was adequate for SEM according to recommended ratios of participants to estimated parameters.

Table 2

Pearson Correlation Coefficients Between Study Variables

Variable	1	2	3	4	5
1. Health Anxiety	—				
2. Chronic Fatigue	.51** (p<.001)	—			
3. Spiritual Vitality	−.42** (p<.001)	−.30** (p<.001)	—		
4. Social Support	−.38** (p<.001)	−.34** (p<.001)	.45** (p<.001)	—	
5. Lifestyle	−.46** (p<.001)	−.36** (p<.001)	.41** (p<.001)	.48** (p<.001)	—

The correlation results revealed that health anxiety was positively correlated with chronic fatigue ($r = .51$, $p < .001$) and negatively correlated with spiritual vitality ($r = -.42$, $p < .001$), social support ($r = -.38$, $p < .001$), and lifestyle ($r = -.46$, $p < .001$). All correlations were significant at the .01 level, suggesting strong linear relationships among the variables (Table 2).

Table 3

Fit Indices of the Structural Model

Fit Index	Value	Recommended Cut-off
χ^2 (Chi-Square)	421.38	—
df (Degrees of Freedom)	162	—
χ^2/df	2.60	< 3.00
GFI (Goodness of Fit Index)	0.93	≥ 0.90
AGFI (Adjusted GFI)	0.90	≥ 0.90
CFI (Comparative Fit Index)	0.95	≥ 0.90
TLI (Tucker-Lewis Index)	0.94	≥ 0.90
RMSEA (Root Mean Square Error of Approximation)	0.063	≤ 0.08

The structural model demonstrated a good fit with the data, as evidenced by a χ^2/df ratio of 2.60, a GFI of 0.93, an AGFI of 0.90, and a CFI of 0.95. The RMSEA was 0.063, falling within acceptable limits. Collectively, these indices confirm that the model is statistically sound and represents the relationships among the variables appropriately (Table 3).

Table 4

Total, Direct, and Indirect Effects Between Variables in the Structural Model

Pathway	b	SE	β	p
Chronic Fatigue → Health Anxiety (Direct)	0.34	0.05	0.41	<.001
Spiritual Vitality → Health Anxiety (Direct)	−0.29	0.04	−0.37	<.001
Chronic Fatigue → Social Support	−0.26	0.06	−0.33	<.001
Chronic Fatigue → Lifestyle	−0.24	0.05	−0.30	<.001
Social Support → Health Anxiety	−0.21	0.04	−0.26	<.001
Lifestyle → Health Anxiety	−0.27	0.05	−0.32	<.001
Spiritual Vitality → Social Support	0.31	0.06	0.38	<.001
Spiritual Vitality → Lifestyle	0.28	0.05	0.35	<.001
Indirect: Chronic Fatigue → Health Anxiety (via support, lifestyle)	−0.21	—	−0.25	<.001
Indirect: Spiritual Vitality → Health Anxiety (via support, lifestyle)	−0.19	—	−0.22	<.001
Total: Chronic Fatigue → Health Anxiety	0.13	—	0.16	<.001
Total: Spiritual Vitality → Health Anxiety	−0.48	—	−0.59	<.001

The SEM results demonstrated that chronic fatigue had a significant direct effect on health anxiety ($\beta = 0.41$, $p < .001$) and also an indirect effect through both social support and lifestyle ($\beta = -0.25$, $p < .001$), resulting in a total effect of $\beta = 0.16$. Likewise, spiritual vitality exhibited a strong direct effect ($\beta = -0.37$, $p < .001$) and significant indirect effects ($\beta = -0.22$, $p < .001$), yielding a total negative effect of $\beta = -0.59$. These results support the mediating roles of lifestyle and social support in the relationship between chronic fatigue, spiritual vitality, and health anxiety (Table 4).

Figure 1

Final Model of the Study

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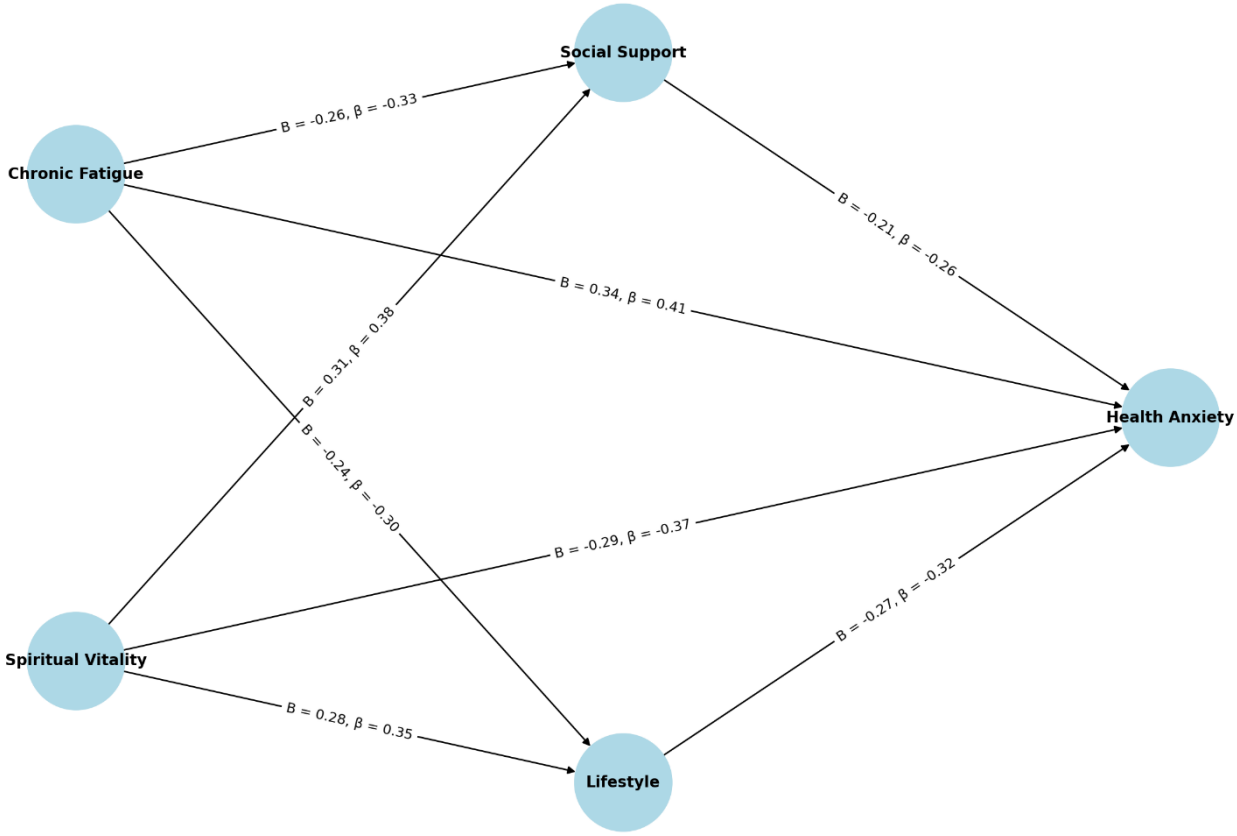

Discussion and Conclusion

The present study aimed to develop a structural model explaining health anxiety in individuals with chronic fatigue syndrome (CFS), based on chronic fatigue symptoms and spiritual vitality, with social support and lifestyle as mediating variables. The results of the structural equation modeling (SEM) indicated that chronic fatigue symptoms significantly predicted higher levels of health anxiety, while spiritual vitality was a negative predictor of health anxiety. Additionally, both social support and lifestyle significantly mediated the relationships between the independent and dependent variables, suggesting their critical roles in mitigating or exacerbating health anxiety in this population.

The positive and significant path from chronic fatigue symptoms to health anxiety highlights the psychological burden of persistent physical symptoms. This finding is consistent with prior research indicating that chronic fatigue is a significant stressor that increases somatic vigilance and misinterpretation of bodily sensations, thereby exacerbating anxiety related to health concerns (Loades et al., 2017; Walter et al., 2018). Patients with CFS are often preoccupied with the idea that their fatigue signals an undiagnosed or serious illness, which aligns with cognitive models of health anxiety. Weaver's (Weaver, 2025) clinical data on metabolic fatigue also support this relationship, indicating that symptom severity is closely linked with psychological functioning and illness perception. Additionally, Western et al. (Western et al., 2021) showed that fatigue after neurological events such as subarachnoid hemorrhage remains a chronic concern associated with psychological distress, further confirming the chronicity of fatigue-anxiety links.

Moreover, the study found a strong and significant negative association between spiritual vitality and health anxiety, consistent with prior evidence emphasizing the protective role of spiritual and existential well-being in chronic illness populations. Individuals who report higher spiritual vitality are often better equipped to manage stress, attribute meaning to suffering, and show reduced illness-related anxiety (Lau et al., 2022; Shen et

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al., 2024). The findings mirror those of Marck et al. (Marck et al., 2017), who demonstrated that among patients with multiple sclerosis, spirituality played a mediating role in the relationship between fatigue, mental distress, and perceived quality of life. Similarly, Hajiebrahim Araghi et al. (Hajiebrahim Araghi et al., 2024) showed that spiritually oriented women with obesity were more resistant to body-related anxiety, reinforcing the universality of spirituality as a resilience factor. Therefore, these findings suggest that enhancing spiritual vitality in CFS patients could be a critical component of psychological intervention strategies targeting health anxiety.

The mediating role of social support between fatigue and health anxiety was statistically significant and supports a growing body of literature emphasizing the buffering effects of supportive relationships. Social support may reduce health anxiety by providing reassurance, reducing perceived isolation, and facilitating better emotional regulation (Gu et al., 2022; Nakao et al., 2021). Khanji et al. (Khanji et al., 2023) documented similar outcomes in their longitudinal study, finding that healthcare workers with higher social connectivity reported less anxiety and better mental health during COVID-19-related burnout. These results align with the current findings and highlight the necessity of integrating social support mechanisms in the management of chronic fatigue and related anxiety conditions.

Lifestyle also emerged as a significant mediating variable. Individuals with more health-promoting behaviors (e.g., regular exercise, balanced diet, sleep hygiene) reported lower levels of health anxiety even when experiencing chronic fatigue symptoms. This is in line with previous findings by Fahim et al. (Fahim et al., 2022), who reported that a proactive lifestyle reduced psychological stress during the pandemic. Similarly, Mahdian et al. (Mahdian et al., 2021) found that psychological and social well-being were significantly associated with lifestyle behaviors, independent of occupational stressors. Keramati (Keramati, 2021) also noted that physically active faculty members had better health-related quality of life than their sedentary counterparts, further validating the mediating effect observed in this study.

It is also noteworthy that the final structural model demonstrated good fit indices, confirming the adequacy of the hypothesized relationships. This is consistent with the theoretical framework proposed by Völker et al. (Völker et al., 2015), who argued for a multifactorial approach to understanding subjective fatigue and its psychological correlates. In another related study, Palotai et al. (Palotai et al., 2020) presented a novel classification of fatigue that accounted for psychological and temporal components, which parallels the multidimensional conceptualization used in the current study. Moreover, Lestari et al. (Lestari et al., 2023) and Khabibullin et al. (Khabibullin & Кочеткова, 2023) emphasized the need to integrate fatigue assessments with psychological diagnostics to improve outcomes in fatigue-related conditions.

The present findings also align with Xiaoqun and Ye (Xiaoqun & Ye, 2022), who found that student fatigue due to workload and stress was significantly related to lower academic engagement and teaching quality, reinforcing the idea that fatigue's impact transcends physical limitations and affects cognitive and emotional domains. Likewise, Lu et al. (Lu et al., 2021) metaphorically equated thermomechanical fatigue in railway systems to chronic human fatigue, underscoring the importance of monitoring performance deterioration over time. Zhang et al. (Zhang et al., 2021) also found that fatigue alters physical response patterns during activities, which may explain why CFS patients experience somatic symptoms that amplify health-related anxiety.

In terms of spiritual vitality and lifestyle, Dailey et al. (Dailey et al., 2015) and Lau et al. (Lau et al., 2022) proposed that non-pharmacological interventions—such as mindfulness, spiritual engagement, and behavioral activation—can be particularly effective in managing psychological outcomes in fatigue-related disorders. Additionally, Liang et al. (Liang et al., 2024) stressed that stress management and behavioral modification significantly influence physiological fatigue outcomes, supporting lifestyle-focused therapeutic approaches. Therefore, the model proposed in this study is well-aligned with both theoretical and empirical literature emphasizing biopsychosocial pathways in chronic fatigue and anxiety conditions.

Despite the strengths of a large sample size and the use of validated instruments, this study has several limitations. First, its cross-sectional design restricts the ability to make causal inferences between the observed

variables. Although the SEM model proposes directional paths, longitudinal data would be necessary to confirm these temporal relationships. Second, the sample was drawn exclusively from patients in Tehran, limiting the generalizability of the findings to broader geographic or cultural contexts. Third, self-report measures were used to assess all variables, which may introduce response biases such as social desirability or recall inaccuracies. Furthermore, although spiritual vitality was shown to be a significant predictor, the study did not control for participants' religious background, which may influence spiritual perception and reporting.

Future studies should consider longitudinal or experimental designs to establish better causality between fatigue symptoms, spiritual vitality, social support, lifestyle, and health anxiety. Expanding the sample to include diverse populations across different regions, age groups, or clinical backgrounds could enhance the external validity of the model. Additionally, future research could incorporate physiological markers (e.g., cortisol levels, heart rate variability) to triangulate subjective fatigue and anxiety measures. Exploring cultural variations in the meaning of spirituality and social support may also provide deeper insight into how these constructs function across different communities.

From a clinical perspective, the findings highlight the importance of designing holistic interventions that address not only the physiological symptoms of fatigue but also the psychological and existential challenges faced by patients. Health professionals should assess for spiritual well-being and encourage lifestyle modifications as part of comprehensive treatment plans. Structured social support programs, such as peer support groups or community-based interventions, can also serve as effective buffers against health anxiety. Incorporating these multidimensional strategies into chronic fatigue management could improve both physical health and emotional resilience in affected individuals.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

By the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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